

**Work Order ID 67577**

Monday, March 28, 2011 11:23:32 AM

Page 1

Item ID: D205-634-041

Accept

Setup Start

Revision ID:

Stop

Item Name: Replacement Skidtube

Start Date: 3/28/2011 Start Qty: 1.00

Required Date: 4/13/2011 Req'd Qty: 1.00

Cust Item ID:

Customer:

Reference:

Approvals:

Process Plan:

Date: 11-03-28

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run Start

Stop

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

Draw Nbr

Revision Nbr

D2580-041

Rev.D DEO-D1

100

0.00



DOCUMENT CONTROL

DC

Memo

0.00

Document Control

Photocopy D205-634 bluefile &amp; type labels per PPP D205-634-041 CHG003

S 11/04/20

110

0.00



BENDING MACHINE - SKIDTUBES

CNC Bend 1

Memo

0.00

CNC Delta 100 Bender

1-Bend as per program D2580.C on CNC Bender and Folio 16

2-Cut tubes as per Dwg. D2580

3- scribe batch# in aft end of tube

11-3-31

B67577

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
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NOTE: Date & initial all entries

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Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Stop



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

120

0.00



Skidtubes

Memo

0.00

Skidtubes

1- Deburr ends and remove bending marks

2- Prepare tube for swaging as per QSI 002

&gt; DP 11-4-1

130

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

Quality Control

1 0 BE 11/04/11

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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Reference:

Run Start



Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Stop



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

140

0.00



Skidtubes

Skidtubes

Memo

0.00

1-Weld step D2576 as per Dwg. D2580 and QSI004

A/R□□□ Aluminum Rod

M116577

BE 11/04/01

2-Grind welds on step as per Dwg D2580

3-Insert D4202-1 spacer, swage as per QSI002 and trim/ grind flush per QSI002 and dwg. Hold x-bolt with DT9701 Use tube expander 1/2 x 17G to start expansion and finish with 1/2 x 18G to achieve dwg dimension.

4-Drill holes for wearplates using DT 8217 &amp; DT8937 Open holes to 19/64", adjust stopper not to hit web. Debur

6-Drill pilot holes for aft cap using DT 8215 Open holes to 0.208". Debur

7-Drill pilot holes for Tow ring using DT8091, open to .640" and Debur

BE 11/04/04

150

QC10- Inspect visual per QSI004- ground welds

0.00



QC

Quality Control

Memo

0.00

Suloxlor

Pto =&gt;

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: D205634-041 PAR #: W/A Fault Category: Eng. Skid tubes NCR: Yes No DQA: A Date: 11.04.21  
 Resolution: Repair Disposition: Rework QA: N/C Closed: OK Date: 11/04/25

NCR: <u>67577</u>		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
11/04/04	1/10	Found when inspection skid tube that the x-bolt spacers were cracked the 4th, 5th + 16th hole from Aft. R.C. Process swagun/Engineering	<u>W</u> 11/04/04	Remove + Replace 3 x-bolt spacers. Remove the two D 4202-1 B <u>67430</u> (14)	<u>BE</u> 11/04/04	<u>S</u> 11/04/04	<u>W</u> 11/04/04	<u>S</u> 11/04/04
			<u>W</u> 11/04/04	Re swage cross bolt spacer Re inspect	<u>BE</u> 11/04/04 <u>W</u>	<u>S</u> 11/04/04	<u>W</u> 11/04/04	<u>S</u> 11/04/04

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Customer:

Reference:

Run Start

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Stop

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

160

QC5- Inspect part completeness to step on W/O

0.00

QC

Memo

0.00

Quality Control

170

Pressure Wash per QSI005 4.3

0.00

HandFinish

Memo

0.00

Hand Finishing

✓ Re-alodine tube as per QSI 005 section 4.1.2.1 do not acid etch and leave fwd cap out of solution.

180

White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum

0.00

Powdercoat

Memo

0.00

Powder Coating

START TIME:  
OVEN TEMPERATURE:  
FINISH TIME:8:40  
320°  
9:10

1 6 11/04/04

1 BL 11-4-4

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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Customer:

Reference:

Run Start



Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Stop



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

190

QC3- Inspect Part Finish

0.00



QC

Memo

0.00

Quality Control

1      0      24 110412

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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Customer:

Reference:

Run Start



Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Stop



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

200

0.00



HandFinish

0.00

Hand Finishing

**Memo**

1-Install inserts &amp; wearplates &amp; Gaskets as per Dwg. D2580. Use a drop of

Sikaflex on insert holes before installing wearplates

A/R ☐ ☐ ☐ Sikaflex-291 ☐ M116198Sikaflex expire date: 12/012-Coat D2594-3 O' rings with Petroleum Jelly and install on D2594-1 plugs as  
per Dwg D2580

3-Inspect for foreign object per QSI 024

4-Install 2855 Aft Cap as per Dwg D2580 and seal Fwd Step &amp; Aft Cap with

Sikaflex. Clean excess adhesive

A/R ☐ ☐ ☐ Sikaflex-291 ☐ M116198Sikaflex expire date: 12/01

5-Wing Walk as per Dwg D2580 and QSI 005 4.4

Batch: M1173151 of Malosi

W/O:		WORK ORDER CHANGES					
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Cust Item ID:

Required Date: 4/13/2011 Req'd Qty: 1.00



Customer:

Reference:

Run Start



Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Stop



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

210

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

Quality Control

Inspect Aft Cap, Fwd Step and Wing Walk of work to Current Step Inspect for Foreign objects per QSI 024

11 04 19 ①

220

Packaging

0.00



Packaging

Memo

0.00

Packaging

Identify and pack for shipping as per PPPD205-634-041

Location: \_\_\_\_\_

PPP Rev: K

11/4/2011

230

QC21- Final Inspection - Work Order Release

0.00



QC

Memo

0.00

Quality Control

11/4/2011

ME

11-04-19

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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**NOTE:** Date & initial all entries

Monday, March 28, 2011 11:23:37 AM

**Parent Item:** D205-634-041

**Parent Item Name:** Replacement Skidtube

**Start Date:** 3/28/2011**Required Date: 4/13/2011**

**Start Qty: 1.00**

**Required Qty: 1.00**

**Comments:** IPP Rev:N 02.08.28 FP was QC5 in Step 27; Added QC5 to Step 30  
KJ IPP Rev P 10.02.19  
per PAR09-043 EC verified by:DD  
IPP Rev. O 06.02.28 Added paperwork EC  
IPP Rev:P 07-07-09 SS Wearplates & Gaskets JLM IPP Rev:Q  
10.12.01 as per chg003 DD verf:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D4202-1 		Manufactured	No			140	Each	303.0000	20	20			
Spacer													
				<u>Location</u>		<u>Loc Qty</u>		<u>Loc Code</u>					
				LG002	B67432	303							
					66929	106							
					67129	196							
					67308	1							
D2580-1 		Manufactured	No			110	Each	0.0000	1	1			
205 Skidtube bent detail													
D2576-3 		Manufactured	No			140	Each	17.0000	1	1			
Step (maching detail)													
				<u>Location</u>		<u>Loc Qty</u>		<u>Loc Code</u>					
				* LG		17							
					52215	17							

W/O:		WORK ORDER CHANGES					
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Work Order ID: 67577

Parent Item: D205-634-041

Parent Item Name: Replacement Skidtube

Start Date: 3/28/2011

Required Date: 4/13/2011

Start Qty: 1.00

Required Qty: 1.00

D2855 Manufactured No

200 Each

75.0000 1 1



Cap



1104112

Location

Loc Qty

Loc Code

FP007

75

53791

38

65519

2

65569

35

x1

AN3-5A Purchased No

200 Each

441.0000 2 2



Bolt



1104112

Location

Loc Qty

Loc Code

ST350

441

115371

300

116632

141

x2

AN960JD10L NAS1149D0332J Purchased No

200 Each

0.0000 2 2



Washer

1117010



(x2) 1104112

ALS7-1032-130 Purchased No

200 Each

605.0000 50 50



Insert



1104112

Location

Loc Qty

Loc Code

ST282

605

116800

605

x50

AN3C4A Purchased No

200 Each

0.0000 50 50



BOLT

1116924



(x50) 1104112

AN960C10L NAS1149C0332 R Purchased No

200 Each

0.0000 50 50



washer

1117291



(x50) 1104112

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Shop Packet Print

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W/O:		WORK ORDER CHANGES					
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Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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Required Date: 4/13/2011

Start Qty: 1.00



Required Qty: 1.00

D3566-13	Manufactured	No	200	Each	32.0000	1	1
							<u>41</u> 4/10/12
Gasket							



<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
FP014	32	
<u>66550</u>	32	

D3566-5	Manufactured	No	200	Each	8.0000	1	1
							<u>41</u> 4/10/12
Gasket							

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
FP015	8	
<u>66552</u>	8	

D3566-1	Manufactured	No	200	Each	2.0000	2	2
							<u>41</u> 4/10/12
Gasket							

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
FP011	2	
<u>67496</u>	2	B67579

D3564-11	Manufactured	No	200	Each	8.0000	1	1
							<u>41</u> 4/10/12
Wearshoe							

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
FP019	8	
<u>66154</u>	8	

W/O:		WORK ORDER CHANGES					
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Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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Start Qty: 1.00



Required Qty: 1.00

D3564-13	Manufactured	No	200	Each	43.0000	1	1
							<u>all 11/04/12</u>
Wearshoe							



<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
FP017	43	
66136	18	
<u>66549</u>	7	
66805	18	

D3564-9	Manufactured	No	200	Each	6.0000	1	1
							<u>(x1) 11/04/12</u>
Wearshoe							

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
FP019	6	
66153	6	

D3564-5	Manufactured	No	200	Each	15.0000	1	1
							<u>all 11/04/12</u>
Wearshoe							

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
FG	2	
34806	2	
FP019	13	
<u>66551</u>	13	

D2594-3	Manufactured	No	200	Each	444.0000	16	16
							<u>all 11/04/12</u>
O-Ring, 205 Skidtube							

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
FP-A	444	
<u>65518</u>	444	

W/O:		WORK ORDER CHANGES					
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Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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Start Qty: 1.00

Required Qty: 1.00

D2594-1

Manufactured

No

200

Each

471.0000

16

16



Plug, 205 Skidtube



Handwritten: 44 4/13/12

Location

Loc Qty

Loc Code

FP-A

471

42807

28

66122

196

66932

240

67441

7

Handwritten: X16

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



**DART**

DESIGN <i>[Signature]</i>	DRAWN BY <i>[Signature]</i>	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
CHECKED <i>[Signature]</i>	APPROVED <i>[Signature]</i>	DRAWING NO. D2580	REV. D SHEET 1 OF 3
DATE 07.02.27		TITLE 205 SKIDTUBE ASSEMBLY	SCALE NTS
A	96.09.16	NEW ISSUE	
B	96.12.02	AS MANUFACTURED	
C	98.08.26	REDRAWN, INCLUDED DEO 9094/9097	
D	07.02.27	CHANGE TO SS WEARPLATES AND GASKETS, INCLUDE DEO 9124/9183	

**RELEASED**  
07.06.28 *[Signature]***DEO ATTACHED**

QTY -041	QTY -045	Part Number	Description
X		D2580-041	SKIDTUBE ASSEMBLY
	X	D2580-045	SKIDTUBE ASSEMBLY
1	1	D2500-1-190	EXTRUSION
1	1	D2576-3	STEP
20	24	D2579	CROSS BOLT SPACER
16	16	D2594-1	PLUG
16	16	D2594-3	O-RING
1	1	D2596	205 WEB
1	1	D2855	AFT CAP
1	1	D3564-5	WEARSHOE
1	1	D3564-9	WEARSHOE
1	1	D3564-11	WEARSHOE
1	1	D3564-13	WEARSHOE
2	2	D3566-1	GASKET
1	1	D3566-5	GASKET
1	1	D3566-13	GASKET
50	50	ALS7-1032-130 or AKS7-1032-130 or AKS4-1032-130 or AELS-1032-130	INSERT
50	50	AN3C4A	BOLT
2	2	AN3-5A	BOLT
50	50	AN960C10L	WASHER
2	2	AN960JD10L	WASHER

SHOP COPY  
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UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
NO. *67577*  
*11-03-28*

**GENERAL NOTES:**

- 1) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 2) ALL DIMENSIONS ARE IN INCHES
- 3) INSERT D2596 WEB TO LOCATION SHOWN OFF AFT END OF SKIDTUBE AND BOND WEB INTO OUTER TUBE WITH NON-STRUCTURAL SIKAFLEX-241 ADHESIVE PER DART QSI 015 BEFORE BENDING. ENSURE HOLES LINE-UP.
- 4) BEND AS A SMOOTH RADIUS STARTING WITH A MAXIMUM CENTERLINE RADIUS OF 60 AND ENDING WITH A MINIMUM RADIUS OF 30. A MAXIMUM REDUCTION OF 0.200 IN DIAMETER IS ALLOWABLE IN THE BENT PORTION OF THE TUBE.
- 5) USE DART DRILL TEMPLATE TD2577-205 TO LOCATE AND DRILL  $\varnothing 0.257$  HOLES FOR WEARSHOE INSERTS. INSTALL ALS7-1032-130 PER SECTION D-D (50 PLACES) AFTER FINISH. INSTALL AN3C4A BOLTS AND AN960C10L WASHERS WITH SIKAFLEX-241/-291.
- 6) WELDING TO BE DONE PER DART QSI 004.
- 7) FINISH:  
SEE NOTES ON  
PAGE 2 FOR D2580-041 AND  
PAGE 3 FOR D2580-045
- 8) INSERT D2594-1 PLUG C/W D2594-3 O-RING IN HOLES MARKED 'P' (BOTH SIDES OF TUBE) AFTER FINISH (16 PLACES).

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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

RELEASED  
07-06-28

**DEO ATTACHED**

Technical drawing of a circular component with a central hole. The drawing includes the following labels and dimensions:

- DRILL PRIOR TO D2855 CAP INSTALLATION (2 PLACES)**: Points to the central hole.
- Ø0.208**: Dimension of the central hole.
- AN3-5A BOLT (1)**: Points to the bolt in the central hole.
- AN960JDIOL WASHER (1) (2 PLACES)**: Points to the washer in the central hole.
- D2855 CAP**: Points to the cap on the central hole.
- SEAL WITH SIKAFLEX-241/-291**: Points to the sealant application area.
- 0.40**: Dimension of the outer diameter.

D2579 SPACER

D2596 WEB (REF)

AL57-1032-130 (REF)  
(TYP 50 PLACES)

PERFORM THE FOLLOWING FOR Ø0.508 HOLES ONLY:

1. CHAMFER HOLE 0.050 X 45°
2. INSERT D2579 SPACER (20 PLACES)
3. WELD INTO PLACE AND GRIND FLUSH
4. C/BORE D2579 SPACER TO Ø0.437 X 1.00 DEEP

i) FINISH: ACID ETCH, ALODINE PER DART QSI 005 4.1 PRIOR TO INSERTING D2596 WEB POWDER COAT ASSEMBLY GLOSS WHITE (REF. 4.3.5.1) PER DART QSI 005 4.3 BLACK ANTI-SKID PAINT AS INDICATED PER DART QSI 005 4.4

37.50  
DISTANCE TO AFT END  
OF D2596 WEB  
3  
7  
1.750  
1.750  
Ø0.508 (TYP.)  
(40 PLACES)  
REFER TO DETAIL A  
REFER TO DETAIL A  
8.750  
17.375  
26.000  
34.188  
57.313 (REF)  
7 EQUAL SPACES  
8.188 PITCH  
38.0  
91.500  
190.0  
(D2500-1)

[illegible]

**WELD AS PER DETAIL B**

**BLACK ANTI-SKID TO 0.5 ABOVE LOCATION RIDGE**

**BLACK ANTI-SKID TOP OF STEP TO 0.5 ABOVE BOTTOM EDGE**

**B**

**D**

**P P P P P P P**

**REFER TO DETAIL C**

**D3566-1**

**D3566-5**

**D3566-1**

**D3566-13**

**D3564-11**

**D3564-5**

**D3564-9**

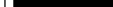
**D3564-13**

**AN304A BOLT (1)**

**AN960C10L WASHER (1)**

**(50 PLACES)**

DESIGN	DRAWN BY
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		DATE 07.02.27	TITLE 205 SKIDTUBE ASSEMBLY		SCALE 1:24

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

Diagram of a circular cross-section of a pipe with four vertical stiffeners. The stiffeners are spaced 3.500 inches apart. The distance from the centerline of the pipe to the centerline of each stiffener is 1.750 inches.

RELEASED  
07-06-28

Technical drawing of a propeller hub cross-section. The drawing shows a hub with a central bore and four mounting holes. Labels indicate grinding locations: 'GRIND FLUSH (4 PLACES)' points to the four mounting holes; 'GRIND FLUSH' points to the outer rim; 'D2576-3 STEP' points to a step on the outer rim; and 'LOCATION RIDGE ON UNDERSIDE OF D2576' points to a ridge on the bottom surface. A dimension line indicates a distance of  $\frac{1}{4}$  inch from the bottom surface to the center of the mounting holes.

**DETAIL G**  
SCALE 5:24

DRILL PRIOR TO D2855 CAP  
INSTALLATION (2 PLACES)

SEAL WITH  
SIKAFLEX-241/-291

AN3-5A BOLT (1)  
AN980JD10L WASHER (1)  
(2 PLACES)

D2855 CAP

SEE NOTE 5)

0.40

D2579 SPACER

D2596 WEB (REF)

ALS7-1032-130 (REF)  
(TYP 50 PLACES)

AFTER PERFORM  
1. CHA  
2. INS  
3. WEI  
4. C'B

AFTER DRILLING AND BENDING ASSEMBLY  
PERFORM THE FOLLOWING FOR #0.508 HOLES ONLY:

1. CHAMFER HOLE 0.050 X 45°
2. INSERT D2579 SPACER (20 PLACES)
3. WELD INTO PLACE AND GRIND FLUSH
4. C-BORE D2579 SPACER TO #0.437 X 1.00 DEEP

i) FINISH: ACID ETCH, ALODINE PER DART QSI 005 4.1 PRIOR TO INSERTING D2596 WEB  
POWDER COAT ENTIRE ASSEMBLY GREEN (REF. 4.3.5.8) PER DART QSI 005 4.3  
BLACK ANTI-SKID PAINT AS INDICATED PER DART QSI 005 4.4

ii) IT IS ACCEPTABLE TO GRIND A RELIEF IN THE D2855 AFT CAP TO PREVENT INTERFERENCE  
WITH THE SPACER AT THIS LOCATION

37.50  
DISTANCE TO AFT END  
OF D2586 WEB

38.0

REFER TO DETAIL A

8.750

17.375

26.000

34.188

1.750

1.750

#0.5D8 (TYP.)  
(40 PLACES)

57.313 (REF)  
7 EQUAL SPACES  
8.188 PITCH

91.500

190.0  
(D2500-1)

REFER TO DETAIL C

[illegible]

WELD AS PER DETAIL F

BLACK ANTI-SKID TOP OF STEP TO 0.5 ABOVE BOTTOM EDGE

BLACK ANTI-SKID TO 0.5 ABOVE LOCATION RIDGE

NO C'BORE NO PLUG

NO C'BORE NO PLUG

REFER TO DETAIL G

H

P P P P P P P P

D3566-1

D3566-5

D3566-1

D3566-13

D3564-11

D3564-5

D3564-9

D3564-13

AN3C4A BOLT (1)


AN56OC10L WASHER (1)

(50 PLACES)

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DATE 07.02.27	

 <b>DART AEROSPACE LTD.</b> HARRISBURG, ONTARIO, CANADA	
DRAWING NO.	REV.
D2580	SHEET 3 OF 3
TITLE	
205 SKIDTUBE ASSEMBLY	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

DRAWING NO. D2580	TITLE 205 SKIDTUBE ASSEMBLY	REV. D	DART AEROSPACE LTD ENGINEERING ORDER		D.E.O. NO. D2580-D-1	SHEET NO. SHEET 1 OF 1	SCALE NTS
DRAWN <i>UP</i>	CHECKED <i>L</i>	MFG. APPR. <i>B</i>	APPROVED <i>MP</i>		DE APPR. <i>H</i>		
DATE 10.09.22	DATE 10.11.04	DATE 10.11.04	DATE 10/11/04		DATE 10.11.04		

**PURPOSE:**

CHANGE ALL WELDED CROSSBOLT SPACERS TO SWAGED SPACERS

**CHANGE:**

PARTS LIST IS AMENDED AS FOLLOWS:

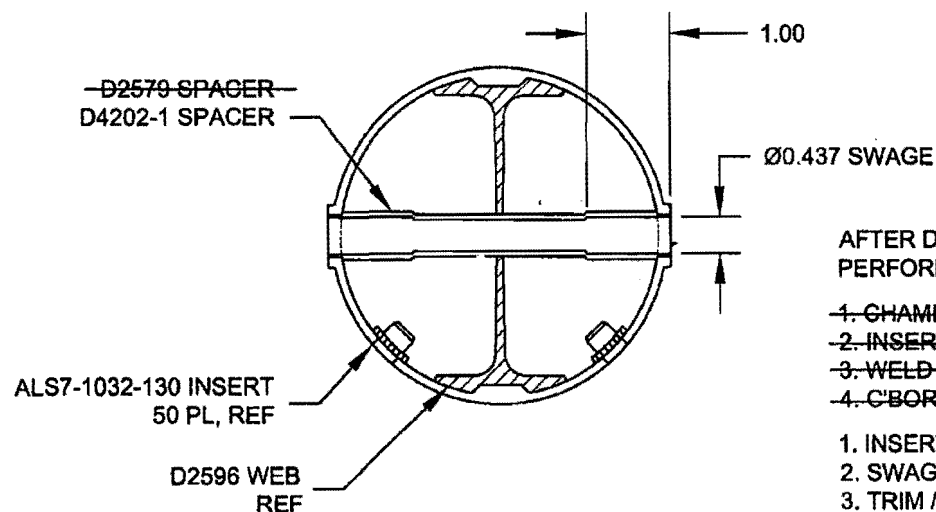
WAS

QTY	QTY	PART NUMBER	DESCRIPTION
-041	-045		
20	24	D2579	CROSS BOLT SPACER

IS

20	24	D4202-1	SPACER
----	----	---------	--------

SECTION D-D & SECTION H-H ARE AMENDED AS FOLLOWS:



**RELEASED**  
2010-11-18  
*MP*

AFTER DRILLING AND BENDING ASSEMBLY  
PERFORM THE FOLLOWING FOR Ø0.508 HOLES ONLY:

1. CHAMFER HOLE 0.050 X 45°
2. INSERT D2579 SPACER (20 PLACES)
3. WELD INTO PLACE AND GRIND FLUSH
4. C'BORE D2579 SPACER TO Ø0.437 X 1.00 DEEP

1. INSERT D4202-1 SPACER, 20 PL (-041) OR 24 PL (-045)
2. SWAGE TO Ø0.437 X 1.00 DEEP PER QSI 002
3. TRIM / GRIND FLUSH PER QSI 002

**SECTION D-D**  
NOT TO SCALE

**SECTION H-H**  
NOT TO SCALE

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W/O:		WORK ORDER CHANGES					
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Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries